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A GARMENT IN THE DOCK; OR, HOW THE FBI ILLUMINATED THE PREHISTORY OF A PAIR OF DENIM JEANS

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Abstract

This article looks at research carried out at the FBI Laboratory's Special Photographic Unit in the identification of denim trousers from bank surveillance film. This research, which was published in 1998, showed that despite the ubiquity of jeans, each pair has individual identifying characteristics caused by the manufacturing process and by wear, and that these might be used as evidence in the identification of criminal suspects. What the FBI research also inadvertently illuminated was an otherwise hidden relationship between garment, maker and wearer, in an effective – if accidental – reversal of commodity fetishism.

Key Words ◆ CCTV ◆ clothing ◆ commodity fetishism ◆ criminalistics ◆ denim ◆ individuation ◆ jeans ◆ wear

So many things in an overcoat! – when circumstances and men make it speak.

H. de Pène, *Paris Intime* (1859)¹

Rag-picking amongst the research findings of other fields can pay rich dividends for the student of material culture. The by-products of military and state practices and investigations can sometimes furnish evidence for other sorts of investigation. In this way early 20th-century archaeologists discerned the signs of prehistoric settlement which inadvertently

appeared in aerial reconnaissance photographs taken during military operations in the First World War.² New technologies can open up perspectives – the aerial perspective is both example and metaphor – where things can be seen to connect in ways that may often have been guessed at but never before made manifest. Well-funded and technologically advanced, the military, intelligence and law-enforcement divisions of state power have the tools and the specialist skills to make things as well as people speak. This article focuses on a particular criminal case in which the correct identification of a set of terrorist suspects was a matter of considerable urgency. Only employees of the FBI operating under these kinds of circumstances would presumably be given resources and leave to pay this sort of extraordinarily close attention to such apparent trifles as the seams of jeans. Whether or not this is so, the FBI's research offers a fruitful scavenging-ground for the rag-picker. For one of its by-products is that it inadvertently opens up a vista in which – like aerial archaeology – the signs of an otherwise hidden history, this time of a garment, are brought to light.

*

In the spring and summer of 1996 there was a series of bombings and robberies in and around the Spokane area of Washington. Police investigations led to the identification of four suspects, members of a white supremacist gang, who apparently funded their activities through crime. A successful prosecution would require positive identification, however, and these men had taken steps to ensure that this would be difficult. CCTV footage from a Spokane branch of the US Bank caught the appearance and movements of the robbers who mounted an armed raid there on 1 April 1996. A particularly clear image of one of the robbers was obtained (Figure 1), but any individuating characteristics of his body and face were obscured by a thick balaclava, gloves, and urban uniform of parka, denim jeans, and trainers. If the criminal's face was invisible to the camera, however, what was particularly clearly revealed in the footage were the creases and wear-patterns of his jeans.

In connection with this case, Dr Richard Vorder Bruegge of the Special Photographic Unit of the FBI has investigated the individuating properties of worn denim jeans (Vorder Bruegge, 1999). Beyond 'class characteristics' of jeans such as manufacturer, style and size, individuating characteristics arise, according to Vorder Bruegge, as a result both of the manufacturing process, and through normal wear-and-tear. The way in which an individual washes and dries his/her jeans, whether they iron them, what they carry in their pockets, the way they walk, and so on, will all result in particular patterns of fading and wear. In particular, it is at the seams and hems where unique characteristics appear.

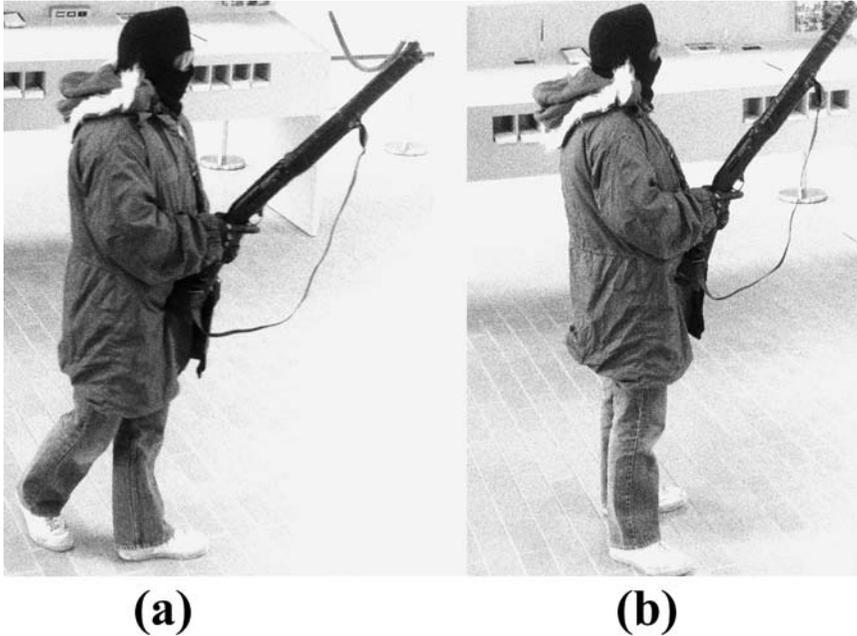


FIGURE 1 (a) Bank surveillance photograph depicting view of Spokane bank robber's left leg; (b) Bank surveillance photograph depicting view of Spokane bank robber's right leg.

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Puckering in these areas, an unavoidable consequence of the manufacturing process, causes what Vorder Bruegge (1999: 613) calls 'ridges and valleys' (Figure 2), which over time are made more visible as areas of dark and light blue, as the indigo denim is abraded through wear, washing or perhaps pre-purchase stone-washing or other treatment. These, appropriately enough, are likened by Vorder Bruegge to barcodes, and he suggests – although confirmation awaits a validation study – that they may be unique to each garment (Vorder Bruegge, 1999: 615).³

When the homes and vehicles of the suspects of the Spokane robberies were searched, 27 pairs of denim jeans were removed and sent to the FBI. Each pair was compared with the footage of the robbery of the US Bank – in particular, those frames in which the robber stood in such a way as to reveal particularly clearly the seams of his trousers (Figure 1). One of the 27 recovered garments, a pair of J.C. Penney 'Plain Pocket' blue jeans, was identified as possessing characteristics matching all of those noted by Dr Vorder Bruegge on the bank film images, and they were used as evidence in the criminal prosecution of the suspect. In the trial the defence called on an 'exporter of used blue jeans' as an



FIGURE 2 'Ridges' and 'valleys' along seam, resembling barcode.

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expert witness, to argue that most of the supposedly 'unique' characteristics of the jeans in question were in fact ubiquitous (Vorder Bruegge, 1999: 619). The exporter produced 34 pairs of jeans, which, he said, exhibited the same characteristics as the bank robber's. When, as part

of the trial, these pairs were examined by Vorder Bruegge, one by one each was demonstrated to lack certain features present on the jeans as depicted on the Spokane bank film. The owner of the jeans, Charles Barbee, was successfully prosecuted, and is now serving time in prison.⁴

*

Dr Vorder Bruegge presented his research at a meeting of the American Academy of Forensic Sciences in February 1998, and the story – including the evidence of the jeans – was widely reported in the press, and aroused a broad popular interest.⁵ For whilst it emerged amidst the paraphernalia of modern technology (CCTV) and apparatuses of state control (the FBI), the case resonates in a number of cultural registers, and has something of the quality of myth. Vorder Bruegge's inspection of the film footage and the denim seems to hover on the well-worn line between deduction and divination, leading to accusations of 'hocus pocus' and 'voodoo' from other crime-detection professionals.⁶ Based on Vorder Bruegge's 'readings' of the jeans, the successful identification of Charles Barbee echoes the genre of detective fiction, begun by Sir Arthur Conan Doyle and Edgar Allen Poe in the 19th century, in which – through slight traces and clues – an individual is successfully picked out from an apparently undifferentiated mass (see Eco and Sebeok, 1983; Joseph and Winter, 1996; Thomas, 1999). Sherlock Holmes, in particular, could deduce things about a person from the slightest of traces: 'By a man's finger-nails,' he asserts, 'by his coat-sleeve, by his boot, by his trouser-knees, by the callosities of his forefinger and thumb, by his expression, by his shirt-cuffs – by each of these things a man's calling is plainly revealed.' (Conan Doyle, 1989: 17).

The Sherlock Holmes stories repeatedly blur the line between rational deduction and divine inspiration, as what seems to be Holmes' second sight, as he successfully identifies a complete stranger, turns out to be the exercise of keen observation, specialist knowledge, and pure reason. As John Carey has observed, the 'appeal of this Holmesian magic and the reassurance it brings' are 'residually religious, akin to the singling-out of the individual soul, redeemed from the mass, that Christianity promises' (Carey, 1992: 9). Since the 19th century Holmes' method has been paralleled in state practices of individual identification, which have been an essential component of tightening state control in modernity (see Benjamin, 1989: 43ff.).⁷ Technologies of identification employed by state bodies have gone from physiognomy and anthropometry to fingerprinting and genetic profiling (see Caplan and Torpey, 2001; Cole, 2001). In the Spokane case, the 'singling-out' of the individual occurs where you might least expect to find it, however: not in the face or physique and not in the fingerprints – a specialist technology

of identification with which we have long been familiar – nor even in the newer technology of genetic fingerprinting (see Cole, 2001). Instead, the individual is redeemed from the crowd through his *jeans*, that most ubiquitous and apparently homogeneous uniform of mass society. Unique identity, it seems from this story, is encoded not just in the body (in the face, in fingerprints, or in the DNA encoded in an eyelash), but in its cultural wrappings too, in the very fabric of its disguises.

Taking place in the paranoid matrix of American urban modernity, the Spokane case reads like a parable of redemption. It suggests that in the eyes of one who sees (a surveillance camera, or the FBI) we are as unique as we surely are in the eyes of God, even where we seem to be most alike. And whilst this identification derives from a complex technology (CCTV, expert photographic analysis of the FBI Photographic Unit), what is particularly appealing about it is that the perception of difference ultimately depends upon nothing more than ordinary vision. The unique characteristics identified by Vorder Bruegge are visible to the naked eye; from this it would seem that just by looking we, too, might be able to perceive these minute yet significant differences. It would seem that if we look hard enough, and in the right way, we too can have access to some otherwise hidden realm where appearance and identity concur.

After all, the idea that worn clothing bears the individuating traces of its wearer confirms the evidence of our everyday experience, and has been well documented in literature, art and advertising. Denim jeans are, of course, particularly well suited to manifesting these traces. Jeans tend to be worn in close intimacy to the body – as Umberto Eco described, with some alarm, in his essay 'Lumbar Thought' (Eco, 1986) – and they therefore become worn, frayed, thinned or odorous in places where body or world rub repeatedly against them. Historically originating as 'work clothes', they are made from a fabric that will both mould itself comfortably to the body, but will also endure a great deal of wear before it tears or disintegrates. Denim not only endures the entropy of wear, however, it also renders it visible, as described by James Agee in an astonishingly lyrical passage on sharecroppers' overalls in *Let Us Now Praise Famous Men* (1941):

The structures sag, and take on the look, some of use; some, the pencil pockets, the pretty atrophies of what is never used; the edges of the thigh pockets become stretched and lie open, fluted, like the gills of a fish. The bright seams lose their whiteness and are lines and ridges. The whole fabric is shrunken to size, which was bought large. The whole shape, texture, color, finally substance, all are changed. (Agee and Evans, 1941: 267)

The particularly *graphic* way in which blue denim renders this map of wear visible is what makes Vorder Bruegge's investigation possible.

Worn denim, as Agee notes, is registered not only in texture but also in differentials of colour and tone. This is due to the fact that the insoluble indigo dye that colours the warp threads of denim does not so much bind to the fabric as sit between its fibres. When these fibres rub against each other, or against a body, or against other objects, the indigo is abraded away to reveal the white fibres of both warp and weft. This accounts for the visibility of the 'barcodes' along the seams, and other patterns described by Vorder Bruegge. It also fortuitously means that such unique characteristics are visible on CCTV footage, since this tonal differentiation of worn denim may be registered on black-and-white surveillance film, if the differentiation is marked enough, and if the film is of sufficiently high quality.⁸

The fact that denim, in particular, bears so visibly the imprint of the absent body and its habits is a conceit reinforced by experience and exploited by manufacturers – for example, the 1980s Levi's advertisement where a girl fetishistically puts on the worn jeans of her boyfriend, who has left on a Greyhound bus to serve in the army (see Finlayson, 1990: 37). Yet denim surely simply manifests in a more obvious (because visible) way something which is there in any garment that has been worn close to the body, as Vorder Bruegge's research seems, at least, to imply. Denim's fading propensity can be seen, then, as an accident which both facilitates his research (and assists in the criminal conviction) but which also *allows us to see*, more broadly, patterns of labour and wear in at least certain kinds of garments. And what is seen points up certain oversights in the literature on old and new clothing.

The motif of worn clothing is a poetic one, and has been explored both in literary and, more recently, academic texts – especially in relation to memory, and the uncanny after-image of an absent wearer. In Thomas Carlyle's *Sartor Resartus*, the empty suits and other old clothes in Monmouth Street market are described as the 'ghosts of life' (Carlyle, 2000 [1833]: 178). Charles Dickens described the same London market in similar terms (Dickens, 1994 [1836]), as cited by Elizabeth Wilson in *Adorned in Dreams*, a book which begins amongst the uncanny disembodied gowns in a costume museum (Wilson, 1985: 1–2). In the volume of essays *Defining Dress* Juliet Ash has written about the representation of 'clothes without people' in art, both as floating commodities, and as memories of absence (Ash, 1999). And Peter Stallybrass, writing after the death of his friend Allon White, has eloquently considered the way in which clothing receives the induplicable smells, sweat and shape of its wearer (Stallybrass, 1993).

All of these stories and academic texts focus on the way in which individual garments might be imprinted with the signature of the wearer's body, evoking or revealing the wearer's identity, character or physiognomy. At Monmouth Street Market, Dickens describes his

endeavour, 'from the shape and fashion of the garment itself, to bring its former owner before our mind's eye' (Dickens, 1994: 78). Second-hand clothes might eerily be imbued with the smells, sweat, or shape of their previous owners – this is the theme, for example, of Beverly Pagram's story 'Clothes Have No Memory' (Dunseath, 1998: 79–83); and it is explored in Nicky Gregson and Louise Crewe's recent book, which focuses on practices of consumption of second-hand goods (Gregson and Crewe, 2003). If it has been bought new, though, a garment is, it seems, a *tabula rasa*, waiting to receive these impressions. James Agee describes as-yet unworn denim overalls as possessing the 'massive yet delicate beauty of most things which are turned out most cheaply in great tribes by machines: and on this basis of structure they are changed into images and marvels of nature' (Agee and Evans, 1941: 267). The passage of attrition from machinery to 'nature' is complete, writes Agee, when the 'mold of the body is fully taken' (Agee and Evans, 1941: 268). This transformation, wreaked on denim by time and wear, is evident in the photographs Walker Evans took to accompany Agee's text (see Figures 3 and 4). New shop-bought clothes, unlike old clothes, it seems, have no particular individuality, and no memory – they are simply waiting to be imprinted with ours.

But if we look closely at the unique characteristics of the jeans identified by Dr Vorder Bruegge, it is clear that the crucial individuating features do not only derive from the suspect's physique and habits, but also – and perhaps more importantly – from the manufacturing process. The analysis of the Spokane suspect's jeans focused on the seams, the primary site of labour in a garment. When, in making up jeans, the operator pushes the denim through the sewing machine, unavoidable tensions are created in the fabric, causing a puckering along the seams, a series of 'ridges and valleys' that is effectively induplicable. This puckering may be amplified when the garment shrinks through being washed; and it is made visible over time as the 'raised portions' of the seam are worn and abraded to reveal the white core of the denim fabric, and the 'valleys' remain dark. This, as I have indicated, is referred to by Vorder Bruegge as a 'barcode' pattern. In the felled inseams of denim jeans, where the fabric pieces are folded over upon each other and stitched together, the seam is four-ply thick. The barcode patterns on these inseams are particularly likely to be visible, since the seam stands higher than the surrounding fabric, and is therefore more subject to abrasion when the wearer walks, runs, or goes about his or her daily business (Vorder Bruegge, 1999: 615).

The side seams of jeans tend to be chainstitched, rather than felled, and these give rise to a different kind of wear-pattern. A chainstitched seam is a simpler – and weaker – kind of seam, where the pieces of fabric are sewn together with no stitching visible on the outside of the garment.

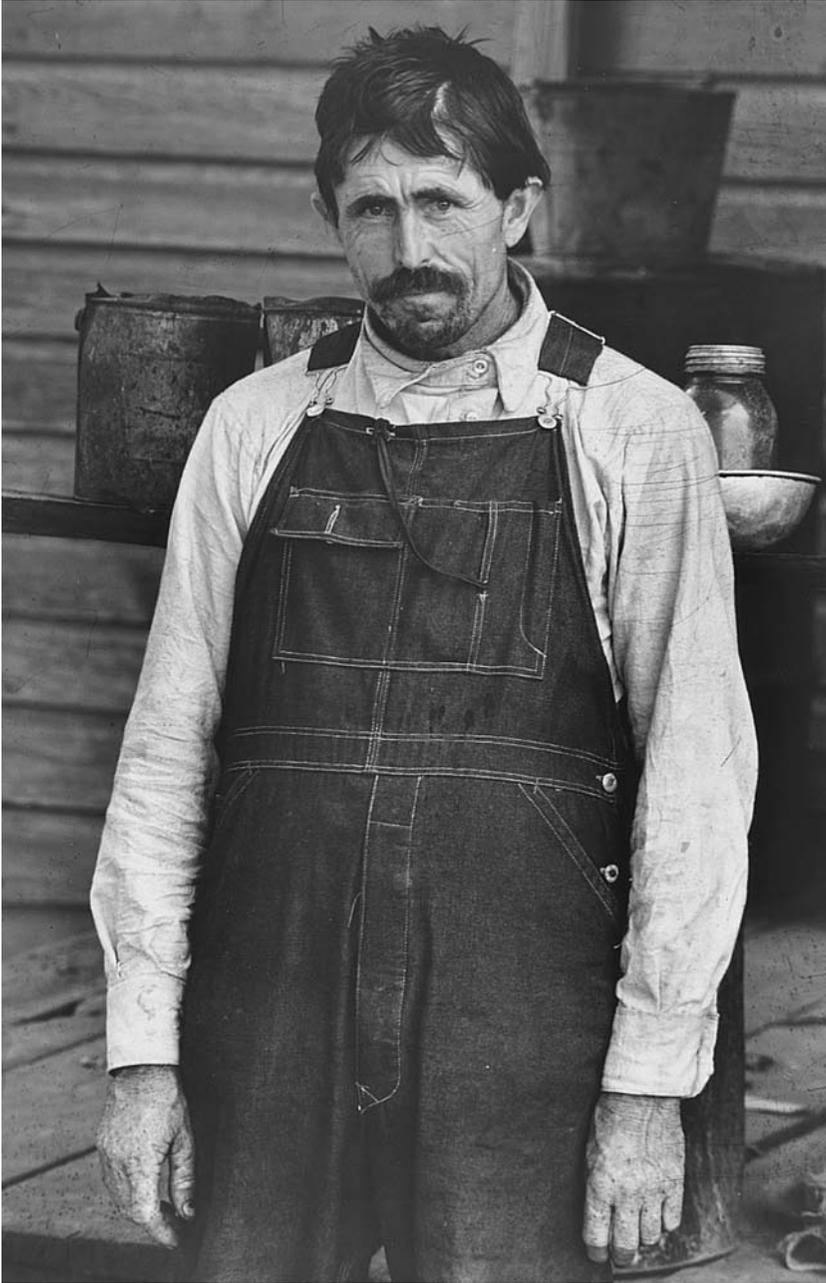


FIGURE 3 Photograph by Walker Evans of Frank Tenge, cotton sharecropper, Hale County, Alabama, 1935–6.

Library of Congress, Prints and Photographs Division, FSA/OWI Collection (LC-USF342-T01-008154-A)



FIGURE 4 Photograph by Walker Evans of Floyd Burroughs and Tenge children, Hale County, Alabama, 1936.

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Inside the garment a chainstitched seam will leave two flaps of excess material. Often these flaps are pressed open flat, creating a two-ply thickness on either side of the seam. Sometimes they are sewn together, and the resultant two-ply flap will tend to lie flat on one or other side of the seam (this can occur, too, if the flaps are not sewn together). Wherever there is a greater thickness in the layers of fabric around the seam area, abrasion is more likely to occur. The flaps created by a chainstitched seam may also, according to Vorder Bruegge, generate a characteristic wear-pattern known as a 'cross-over' (1999: 615). This kind of wear-pattern is demonstrated in these two photographs of a side seam provided by Vorder Bruegge, shown inside and out, with the inside view reversed to facilitate comparison (Figure 5). Along the length of the seam, the inside flaps may lie on one side in some places, and then fold over to the other side in other places. The 'barcode' pattern will appear on the side of the seam where the flaps have settled, since this is where there are more layers of fabric, and therefore where wear is most likely. When the flaps fold over on the other side of the seam, the barcode pattern will appear on the other side. Where the 'cross-over' from one side to the other occurs, there will be a particularly thick section where the fabric flaps are standing on end: here there will be most abrasion, resulting in a distinctive white ridge.

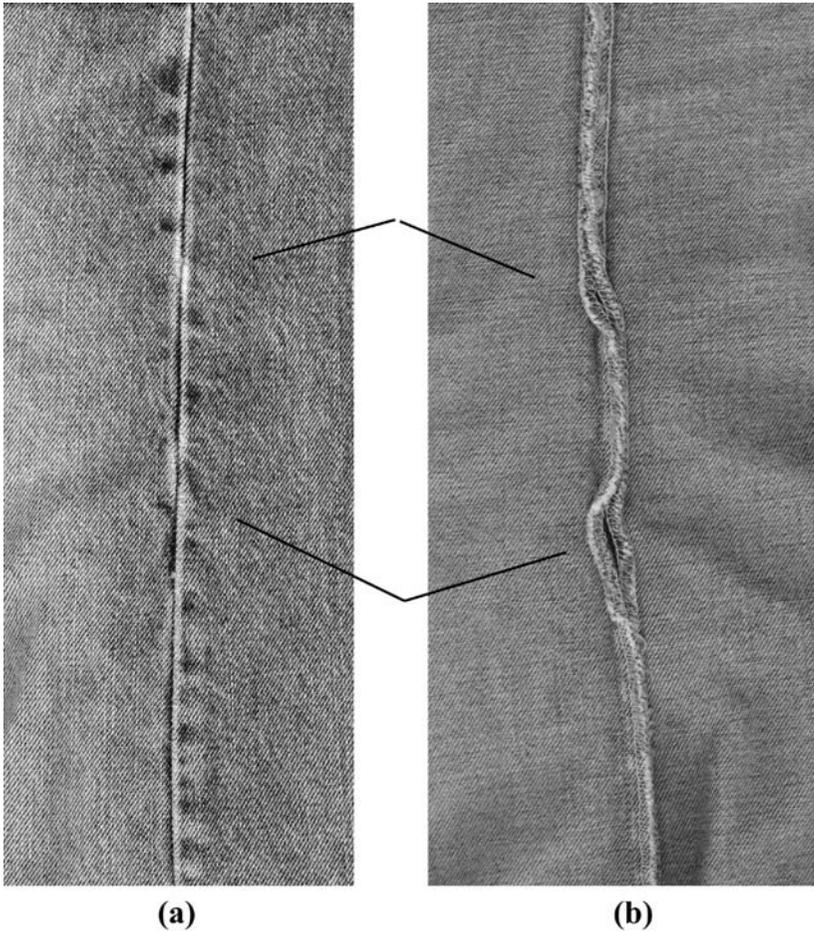


FIGURE 5 'Cross-over' pattern on chainstitched seam (a) Exterior view; (b) Interior view, reversed to match orientation of exterior view as shown in (a). Reprinted, with permission, from the *Journal of Forensic Sciences*, Vol. 44, No. 3, copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428

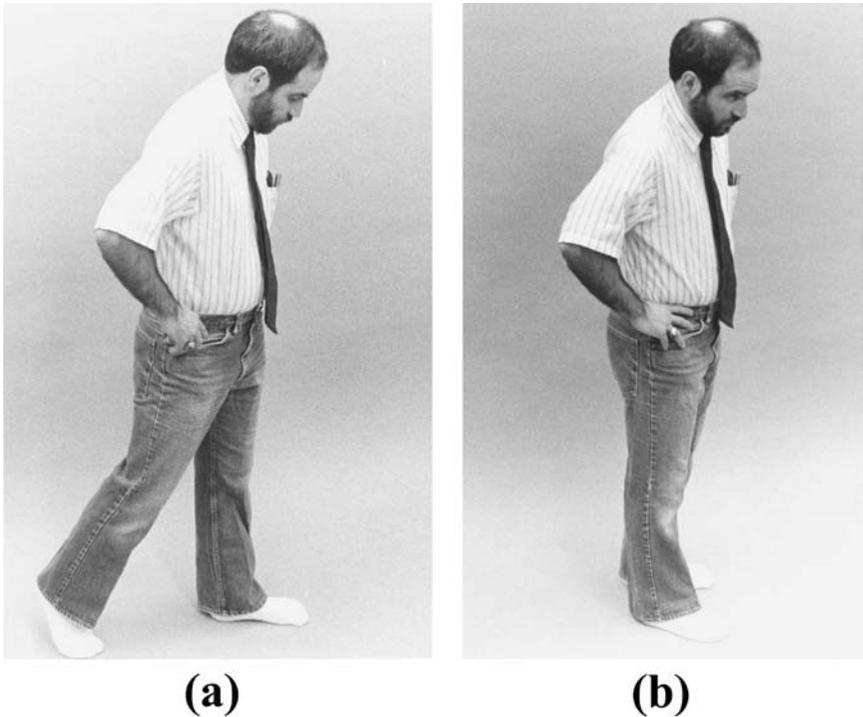
These are the kinds of characteristics that Dr Vorder Bruegge was looking for in the Spokane case, when he sought to compare the jeans depicted in the surveillance film with the jeans recovered from the suspect's home, working on the assumption – well established in criminalistics – that individualization of a piece of physical evidence 'is established by finding agreement of corresponding individual characteristics of such number and significance to preclude the possibility (or probability) of their having occurred by mere coincidence, and establishing that there are no differences that cannot be accounted for'.⁹

In order to demonstrate the self-identity of the recovered jeans and the depicted jeans, when Vorder Bruegge published his results in the *Journal of Forensic Sciences*, he offered detailed comparisons through photographic means. Both legs of the jeans, as depicted on film, were compared with the same parts of the recovered jeans, which were modelled in such a way as to duplicate – as far as possible – the pose of the robber and the angle of the surveillance footage (Figure 6, cf. Figure 1).

Looking at the robber's inside left leg on the CCTV footage, the image was not of good enough quality, and the jeans were too much in shadow to see clearly the 'barcode' pattern on the felled inseam. Despite this, Vorder Bruegge identified four key wear-features (Figure 7), all of which he also found on the recovered jeans (marked here as 'known'). The first of these is a 'bright linear feature' (marked '1') which runs upwards from the hem, just to the left of the inseam and running parallel

FIGURE 6 Modelling of J.C. Penney 'Plain Pocket' blue jeans, recovered from suspect's home (compare Figure 1). (a) shows left inseam; (b) shows right side seam.

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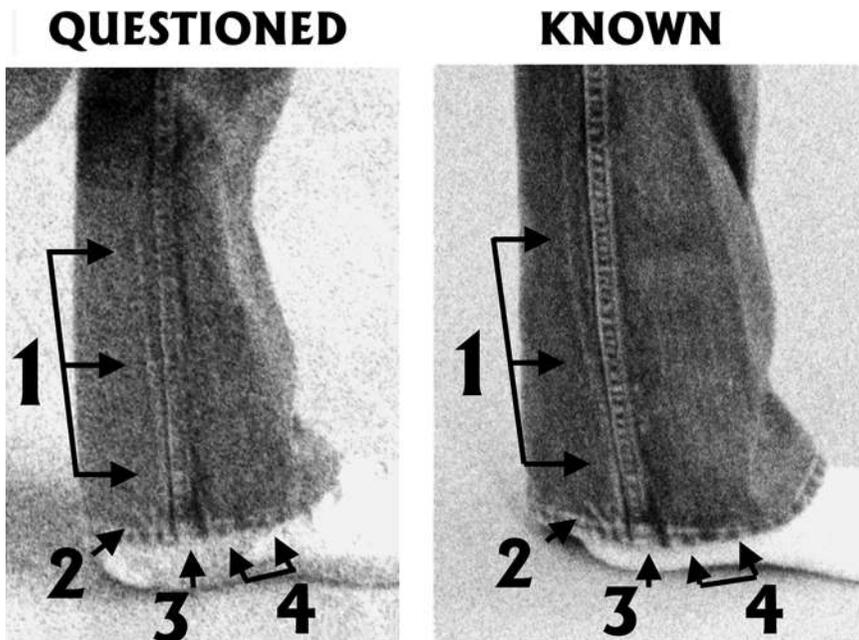


to it before it angles away from it. This characteristic is also visible on the modelled jeans. The feature marked '2' is a bright 'V' shape, tilting to the left, with its base on the hemline, and its right side vertical; this, too, is visible on the recovered jeans. To the right of this, marked '3', is an 'H'-shaped set of dark patches, where the right upright part of the 'H' is broader than the left upright, which runs vertically along the left edge of the inseam. The final key wear-feature identified here by Vorder Bruegge, marked '4', is situated to the right of this 'H' and is a pair of bright features shaped like the Greek letter ' π ' (1999: 617). Both the 'H' and the ' π ' shapes can be seen on the recovered jeans (see Figure 7).

Turning his attention to the outside of the right leg of the robber's jeans, as depicted - much more clearly than the left leg - on the film footage, Dr Vorder Bruegge identified and enumerated a further 26 features (1999: 618). These were also noted in the recovered jeans, as demonstrated by the compared images (Figure 8, the image marked 'known' is taken from Figure 6b). What we have here is what Vorder

FIGURE 7 Side-by-side comparison of Spokane bank robber's left leg: 'Questioned' (see Figure 1a) and left leg of model wearing jeans recovered from suspect's home: 'Known' (see Figure 6a). Numbers show where identifying marks correspond.

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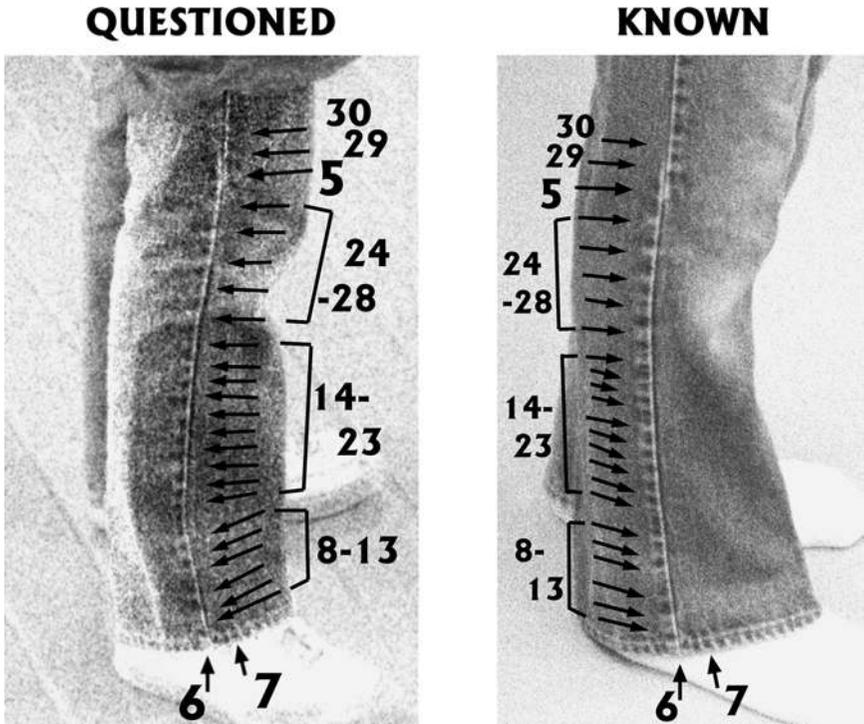


FIGURE 8 Side-by-side comparison of Spokane bank robber's right leg: 'Questioned' (see Figure 1b) and right leg of model wearing jeans recovered from suspect's home: 'Known' (see Figure 6b). Numbers show where identifying marks correspond.

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Bruegge calls 'a distinctive barcode pattern', just to the left of the seam, running from the hem to above the knee. The flaps of fabric on the inside of the trouser leg have evidently settled on this side of the seam, giving rise to the abraded series of slight ridges and furrows evident along the seam of the garment in both images. Just above the knee there is evidence of a 'cross-over' to the other side (marked '5'), as described earlier; for here is a bright white area, where there has been most abrasion. Above this area, the 'barcode' pattern continues on the other side of the seam. Vorder Bruegge observed 23 separate bright patches along this seam, and two further pale areas were identified along the hem. All of these features are visible on the recovered jeans; no features on these failed to be borne out in the CCTV images. Hence Vorder Bruegge was able to individualize the recovered jeans as those worn by the bank robber.

*

Vorder Bruegge's testimony was used in the case against Barbee and his associates, but his method, as I have already indicated, was not uncontested. I am not concerned here with establishing the legal validity of the evidence, which obviously is always going to be contingent on such factors as quality of film and clarity of image, as Vorder Bruegge acknowledges. What I am interested in are, in a sense, the by-products of Vorder Bruegge's research. For whilst the aim of the FBI was simply to match a garment with its caught CCTV image in order to secure a conviction, Vorder Bruegge's inquiry at the same time almost involuntarily exposed something interesting about a worn garment. What was illuminated – inadvertently – was an otherwise hidden relationship between garment, maker, and wearer. For it is not just the traces of an individual wearer that are evident in those jeans. For the purposes of this forensic investigation, the most individuating wear patterns had themselves been primarily determined by the tensions along the seams and hems, tensions which were established by the movements of the maker's hands. These tensions result in an induplicable puckering, which, like a latent image inside the garment, waits for wear and washing to reveal it.

Vorder Bruegge's aim was primarily to individualize jeans, not individuals. The 'ridges and valleys' could, in principle, be revealed by stone-washing just as much as by wear. Yet the walk, experiences and habits of the wearer have an important part to play in determining the jeans' appearance over time. Tensions on fabric and seams alike will be created by 'the mold of the body' and its habitual activities. The wearer's posture, shape and habits doubtless may determine where, exactly, a 'cross-over' may occur; these factors will certainly affect how and where a 'barcode' pattern will emerge (most quickly, and dramatically, for example, wherever the legs rub closest together on the inseams). What Vorder Bruegge's research demonstrates is that the appearance of a pair of jeans is the unique collaboration between maker, fabric and wearer. New clothes are evidently not simply waiting for our imprint to give them an identity, as poetic and literary writing about clothing might imply. Whilst we might imbue our jeans with our own shape, and mould their form and appearance through our habits, we do not do so on a *tabula rasa*. For these garments have their own unique structure, made by, and imbedded with, the traces of the actions and habits of invisible workers, in the prehistory of their existence as commodities. As James Agee suggested, it is precisely *on this basis of structure* that 'they are changed into images and marvels of nature' (Agee and Evans, 1941: 267).

When Marx wrote, famously, about the 'fetishism of commodities', his use of the anthropological term was intended, partly, to describe how

commodities appear in the world as if from nowhere, the process of their production mysteriously occluded as if they were themselves 'independent beings endowed with life' (Marx, 1919: 31). A commodity is labour crystallized in an object; it corresponds to Robert Stoller's description of the fetish (in psychoanalytical discourse) as 'a story masquerading as an object' (Stoller, 1985: 155). In one sense, this is tautological: surely all objects are stories in disguise. Yet for the fetish – whether of the psychosexual or the commodity kind – it is imperative that the masquerade be maintained. It is built into the commodity's very logic and structure that it exists *as a commodity* (retains an exchange-value) in the degree to which the social relations, and specific labour processes that caused it to come into the world, are substituted by the mysterious appearance of an object which takes its place amongst other objects in the 'phantasmagoria' of the world of consumption. 'All trace of its own production should ideally disappear from the object of consumption', wrote Adorno, reflecting here on the commodification of music. 'It should look as though it had never been *made*' (Quoted in Benjamin, 1999: 670).

The fact that in *Capital* Marx's primary example of a commodity was a coat is not, as Peter Stallybrass has pointed out, accidental (Stallybrass, 1998). Marx's overcoat was in and out of the pawnshop throughout the period he was working on *Capital*; without it he could not go to the British Museum to carry out necessary research – partly because of the cold, but also because it imparted a respectable air to its wearer. Marx, like countless others forced to pawn their most intimate belongings, was, according to Stallybrass, made vividly aware of how an object can again become 'a commodity and an exchange value' only when it 'is stripped of its particularity and history' (Stallybrass, 1998: 195). There are other reasons, too, why Marx should have chosen a coat as his prototypical commodity: England, as Stallybrass writes, was at this time 'the heartland of capitalism' precisely 'because it was the heartland of the textile industries'; Engels had come to Manchester to work in the cotton industry (Stallybrass, 1998: 190). What is more, the idea of the fetish in anthropological literature was from the start associated with objects worn on, or close to the body, a proximity which in some way transforms the wearer. Such fetishes might have an affinity, then, with the much-worn overcoat, which transformed Marx into the kind of man who could be admitted to the British Museum.

In a very real way the production and consumption of clothing is still, of course, a classic example of commodity fetishism at work, a fact highlighted by anti-globalization activists who have drawn attention to the way in which multi-national corporations are increasingly outsourcing garment manufacturing to cheap and unregulated labour markets around the world. The labour that has gone to make branded garments such as Gap, Nike or Tommy Hilfiger is hidden behind labels

which may, according to Andrew Ross, say 'Made in the USA' even if they have been sewn on in Asia or Central America (Ross, 1997: 10). Different parts of the manufacturing process may well take place thousands of miles apart. As the mass-produced garment *par excellence* of the modern world, blue jeans as much as any garment are the product of balkanized manufacturing processes and cheap, non-unionized labour, although, of course, this is unlikely to be apparent to the consumer.¹⁰ When we buy a pair of jeans, the identity and geographical location of those workers who have produced the fabric, cut out the pieces, constructed the seams, operated the rivetting machinery, and applied the label is not intelligible by looking at our purchase. Commodity fetishism goes deeper than this, however, for as we have seen, it is in the nature of the commodity to preclude such considerations. To ascribe to the commodity a maker, or makers, and to inquire after their identity, is to go against the grain. Denim jeans, in particular, substitute a phantasmagoric all-American myth of origins for a social reality in which they are more likely to have been made by poorly-paid migrant workers who receive 12 per cent of the retail price.¹¹ Denim jeans come from a mythical place called America, if they come from anywhere; they might not seem to have been *made* at all.

The Spokane case enacts a kind of commodity fetishism in reverse. What is inadvertently revealed in the process of individuation (of a garment, and hence of a suspect) is the evidence of the hand movements of those invisible and anonymous workers whose labour is otherwise occluded in the commodity form. It is as if it is the fingerprints of the seamstress that emerge from the dust of the criminal investigation – and it is these that help to identify the suspect. Once perceived, this reversal of commodity fetishism is not confined to this particular criminal investigation. For the FBI did not so much reveal the latent image of labour embedded in jeans, as show how this image is itself revealed by the jeans' wearer over time. Vorder Bruegge's research illuminates the way in which the traces of labour in jeans are themselves illuminated – almost literally – by ordinary wear. It is not so much, then, the dust of the criminal investigation that reveals the worker's fingerprints; it is the dust of wear, and this extraordinary fact is what is revealed as a by-product of the case.

Vorder Bruegge's research offers an image of the relationship between maker, garment and wearer that is rather different from the commodity chain conceived by Marx and others, where labourer and consumer are geographically and temporally isolated. For here the wearer and maker meet, in a sense, on the plane of the garment that one has made and the other worn. Furthermore, Vorder Bruegge's findings remind us of the indivisibility of clothing and the bodies that make and inhabit them; and not just in abstract terms, but understanding bodies

as physical entities with their own habits, movements and suppurations. His work offers, then, an intimate engagement with the materiality of garment, wear and the body often called for in the study of fashion and material culture but rarely achieved.¹²

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Vorder Bruegge's research into Charles Barbee's jeans necessitated tracing them back to their point of origin, a point whose geographical and human specificity would, in the normal course of things, have remained hidden. 'Through consultation with the manufacturer', writes Vorder Bruegge, 'it was determined that these jeans had been constructed in Clarksville, Tennessee in 1991, using standard hand-guided sewing practices common throughout the blue jean industry' (Vorder Bruegge, 1999: 618). This kind of consultation was necessary to the investigation since it established how, exactly, the seams were constructed, and hence could ascribe the observed characteristics of the jeans to the random consequences of hand-guided sewing. But it also established the otherwise hidden origin of the garment – in at least its temporal and geographical co-ordinates.¹³

In *Sartor Resartus*, Professor Teufelsdröckh (a fictional philosopher of clothing) paces the 'Old-Clothes Market' as if it were a 'Whispering Gallery'. To him, Monmouth Street was, apparently, a 'true Delphic Avenue' (Carlyle, 2000 [1833]: 179). So, too, with the Spokane case, where a pair of J.C. Penney jeans revealed the identity of their owner to the FBI. These jeans spoke: they were there at the US Bank on 1 April 1996; they saw the crime, they dressed the man. But they were also there at a processing plant in Clarksville, Tennessee, in 1991, where they passed through the hands and machine of an anonymous worker who left her (or his) involuntary signature in the garment, a signature which was made visible through the habits and wear of its purchaser, Charles Barbee. Like the Turin Shroud, this pair of jeans was forced to tell its story, thereby to identify the body it clothed; it told more, however, than was necessary for the criminal investigation.

Some scholars, believing the Turin Shroud to bear the negative imprint of the crucified body of Christ, think it possible to reconstruct the whole of Christ's Passion from the stains on the shroud – the location and appearance of the shackles on Christ's feet, the shape of the crown of thorns on his head, and so on, even locating the 'saliva of the last utterance' (Didi-Huberman, 1987: 53). This, as Georges Didi-Huberman points out, is a 'fantasy of referentiality' invited by stains which tell us nothing in themselves about their origins, but which as *indices* demand to be retraced to the acts that have established them. What is more, each act, says Didi-Huberman, 'calls forth . . . the proper name of the actor:

he who left some of his blood on this linen sheet' (1987: 44). The 'ridges and valleys' identified by Vorder Bruegge are just such indices inviting a 'fantasy of referentiality' which can be retraced to the act of sewing. These are the stigmata of labour; and we can trace them to Clarksville in 1991. The fantasy stops short, however, at the point of the 'proper name' of the machine-operator; the illumination, even by the FBI, even if it were crucial to the case, could not be that powerful or bright.

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Notes

1. Quoted in Benjamin (1999: 223).
2. See Hauser (2003).
3. Criminalistics has long paid attention to clothing in forensic investigations. What is different about Vorder Bruegge's research is that it is concerned with ordinary wear rather than extraordinary marks (rips, blood-stains and so on) and has more in common with fingerprint or tyre-tread comparisons, where forensic scientists identify and match unique patterns.
4. The prosecution was successful on its second trial. See www.fbi.gov/publications/terror/terroris.pdf and www.fbi.gov/publications/terror/terr97.pdf.
5. It was reported, for example, on BBC Radio 1 and by *Wired* magazine.
6. 'It sounds like voodoo to me', said Jack King, Public Affairs Director at the National Association of Criminal Defense Lawyers (quoted in Philipkoski, 1998). King's skepticism was based partly on the ability of this type of photographic evidence to show tonal differences with sufficient clarity and resolution. For parallels between deduction and divination, see Ginzburg (1983).
7. Official state practices and the methods of fictional detectives were interestingly closely connected in fact, with borrowings both ways: see Truzzi (1983).
8. Vorder Bruegge points out that the quality of the film must be taken into consideration (Vorder Bruegge, 1999: 613, 621). The US bank footage in question was high quality 35 mm, which facilitated the enquiry (Philipkoski, 1998).
9. H. Tuthill, *Individualization: Principles and Procedures in Criminalistics* (1994), quoted in Vorder Bruegge (1999: 613).
10. See 'The Big Jeans Stitch-Up', special issue of *The New Internationalist* No. 302 (June 1998).
11. 'Jeans - the Facts', special issue of *The New Internationalist* No. 302 (June 1998): 18.

12. See Entwistle (2000).
13. In fact Vorder Bruegge is confident that these jeans were 'wholly cut, constructed and finished in the US': this, he says, is 'how they do/did it at the Levi's plant in Tennessee and that's how it was described to me' (personal communication, 14 Nov. 2002).

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